

**BRIGHTNESS CONTROL OF DISPLAYS
USING EXPONENTIAL CURRENT SOURCE**

Abstract of the Disclosure

5 An apparatus and method of controlling brightness of a display device by
providing a brightness control current that is exponentially related to digital inputs, so
as to maintain perceived uniformity in changes to the level of display brightness. One
embodiment of the apparatus comprises at least one digital input, an attenuator which
receives the digital input and a reference voltage, and which outputs an attenuated
10 voltage based on the digital input; a voltage-to-current converting amplifier circuit
converts the attenuated voltage to current; and a current mirror circuit connected to an
LED array provides current to control the LED array, wherein the control current is
substantially exponentially related to the at least one digital input. Another embodiment
comprises an input trimming resistor network used to enhance the accuracy of the
15 output current values by compensating for the circuit variances as additional current
mirrors are added to the apparatus.

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